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ABSTRACT

A method of fabricating a semiconductor structure including the steps of:

providing a silicon substrate having a surface;

forming by atomic layer deposition a monocrystalline seed layer on the surface of the silicon substrate; and

forming by atomic layer deposition one or more layers of a monocrystalline high dielectric constant oxide on the seed layer,

where providing a substrate includes providing a substrate having formed thereon a silicon oxide, and wherein forming by atomic layer deposition a seed layer further includes depositing a layer of a metal oxide onto a surface of the silicon oxide, flushing the layer of metal oxide with an inert gas, and reacting the metal oxide and the silicon oxide to form a monocrystalline silicate.

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